Test Printer Driver
Fiery X3e 31C-M PS v1.1 eu

on MS Windows 2000
with Terminal Services

- Functionality Test -

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1 Content

1 Content 2
2 Introduction 3
3 Test Environment 4
3.1 ..... Network Infrastructure 4
3.2 ..... Hardware Specification 4
3.2.1 ..... Windows Terminal Server 4
3.2.2 ..... PC Clients 4
3.3 ..... Software Specification 5
3.3.1 ..... MS Windows 2000 Terminal Services 5
3.3.2 ..... CITRIX MetaFrame Server 5
3.3.3 ..... Applications 5
3.3.4 ..... Printer / Printer Driver 5
4 Installation 6
4.1 ..... Installation of printers on a Windows 2000 Server (used as Print Server) 6
4.2 ..... Installation of printers on a Windows 2000 Terminal Server 9
4.3 ..... Connection printers in a Windows 2000 Terminal Server session 10
4.4 ..... Connecting printers as “Auto created client printer” 13
5 Funktionality Tests 14
5.1 ..... Introduction 14
5.2 ..... Test the printer from the Print Server 14
5.3 ..... Test the printer from Terminal Server 14
5.3.1 ..... Test Printer from Terminal Server Console 14
5.3.2 ..... Individual Session on Terminal Server 14
5.3.3 ..... Several Sessions connecting to the printer 14
5.3.4 ..... Several Sessions with concurrent use of the Printer 14
5.3.5 ..... Individual Session on Terminal Server with “Auto created client printer 15
5.4 ..... Test of Features and Settings under Multi-User Conditions 15
5.4.1 ..... Features and Settings 15
6 Summary 16

2 Introduction

The following documentation describes the functionality of Minolta CF2002 with controller CN3102e and PS driver v1.1 running on a Windows 2000 with Terminal Services.

The goal of the test was to get information about the principal functionality of the Printer Driver and its specific functions to show usability in a thin client- and server based environment. Windows 2000 Terminal Server is a multi-user environment.

3 Test Environment

The tests were run in the WTS-Center in Ettlingen in the following environment.

3.1 Network Infrastructure

For the test a switched 100 Mbit/s Fast Ethernet network was used.

3.2 Hardware Specification

3.2.1 Windows Terminal Server

A Fujitsu Siemens N400 with hardware resources typically used in customer environments as Terminal Server was used.

This hardware is sufficient for about 50 concurrent user sessions running Microsoft Office in a Terminal Server environment (this number is application specific).

3.2.1.1 Processor

2 INTEL Xeon 700 Mhz

3.2.1.2 Hard Drives

2 x Hard Drives HP, 18 GByte, Mylex RAID Controller (RAID 1)

The following partitions have been configured:

- C:\ (WTS-System drive - NTFS) Total: 18 GB
- D:\ (CDROM – CDFS)

Server drive re-mapping was used for the tests with MetaFrame, which maps the drives as following:

- M:\ (WTS system drive - NTFS) Total: 18 GB
- N:\ (CDROM – CDFS)

The benefit of this configuration is, that PC-Clients see their own C: drive as C$. This is often used in customers installation.

3.2.1.3 Memory

Physical Memory: 3 GByte RAM

3.2.2 PC Clients

3.2.2.1 Standard Office PC

Different standard office PCs with INTEL Pentium III CPU with 64-512 MB RAM and different standard SVGA graphic adapters were used as clients.

Various ICA Clients was used.

3.3 Software Specification

3.3.1 MS Windows 2000 Terminal Services

Operating System: Microsoft (R) Windows 2000 with Terminal Services (TM), English. Service Pack 2 was installed. The installation was done according to Microsoft guidelines for the installation of Terminal Servers.

3.3.2 CITRIX MetaFrame Server

The Windows Terminal Services have been extended by Citrix MetaFrame XP from CITRIX with Feature Release 2.

3.3.3 Applications

The printer driver was tested with the following applications:

Office 2000 (Word, Excel and Powerpoint)

Acrobat Reader 5.05

Irfan View 3.81

with different documents.

3.3.4 Printer / Printer Driver

The following Printer and Printer driver are tested.

Printer : CF2002 (Copier) + CN3102e (Printer server and controller option)

Notes: Standard configuration of Copier and Printer Controller

Printer driver: Minolta Fiery X3e 31C-M PS v1.1 eu

Printer Configuration:

Copier:

Installed drawer: Tray1 – Tray 4
Installed option: Duplex Unit, Finisher.

Printer option(Fiery X3e):

Firmware version:
BIOS-Setup version:
DIABLO version:

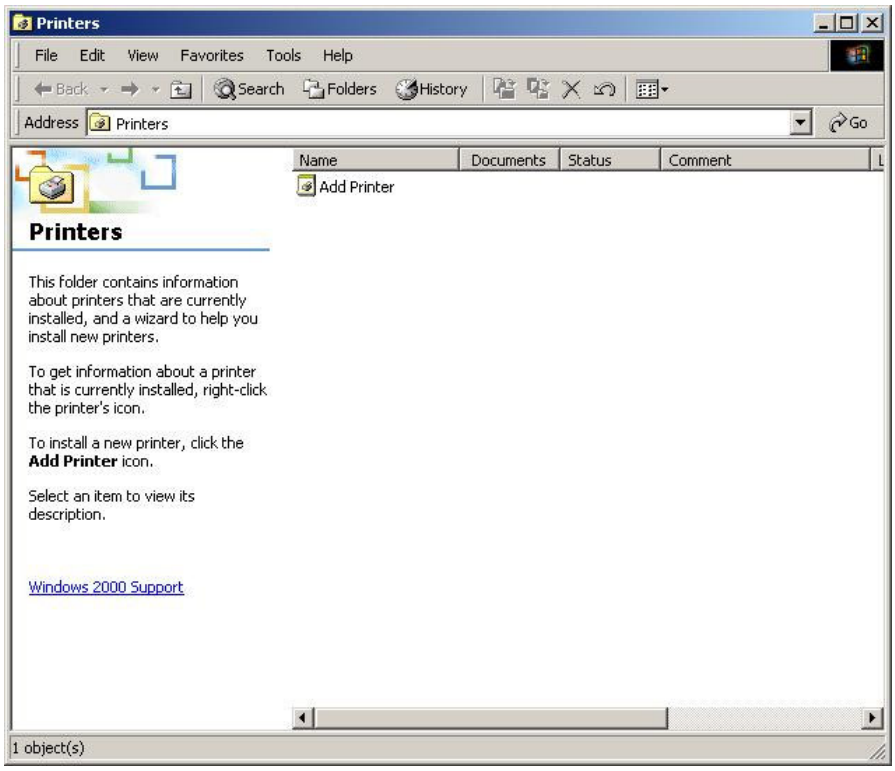
Total Memory: 384 MB

4 Installation

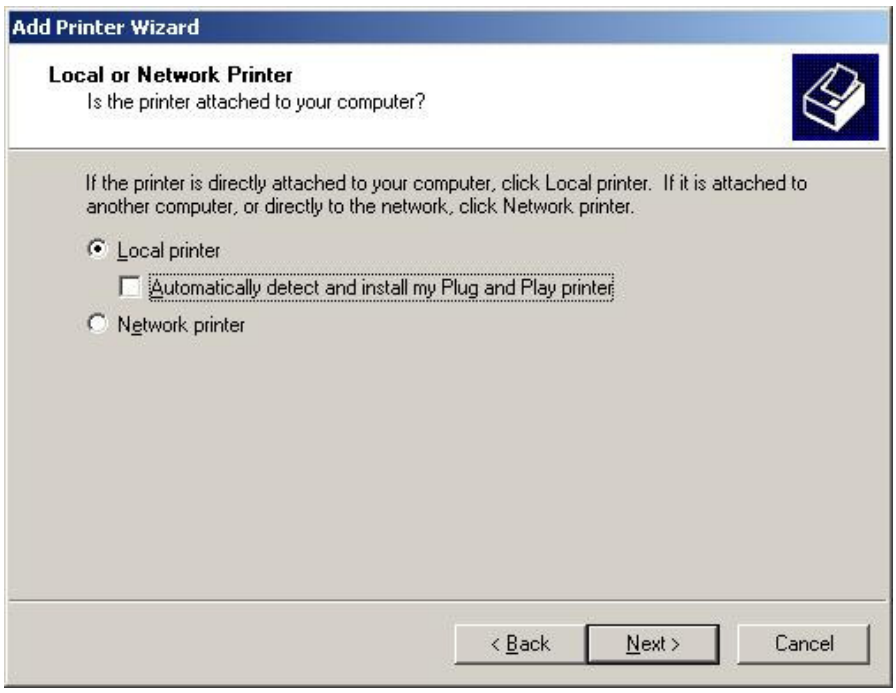
4.1 Installation of printers on a Windows 2000 Server (used as Print Server)

As the Minolta CF2002 is a big machine, it is usually used as a network printer. The installation is done as in all windows-based environments.

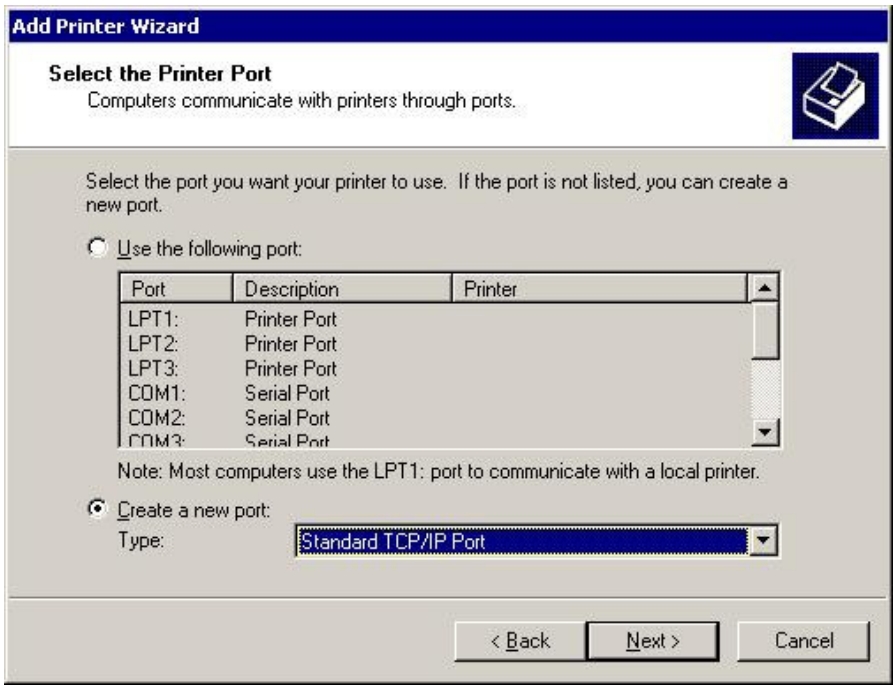
The first step is to add a printer: Start – settings – printers.


Printers
File Edit View Favorites Tools Help
Back Search Folders History
Address Printers
Go
Name Documents Status Comment
Add Printer
Printers
This folder contains information about printers that are currently installed, and a wizard to help you install new printers.
To get information about a printer that is currently installed, right-click the printer's icon.
To install a new printer, click the Add Printer icon.
Select an item to view its description.
Windows 2000 Support
1 object(s)

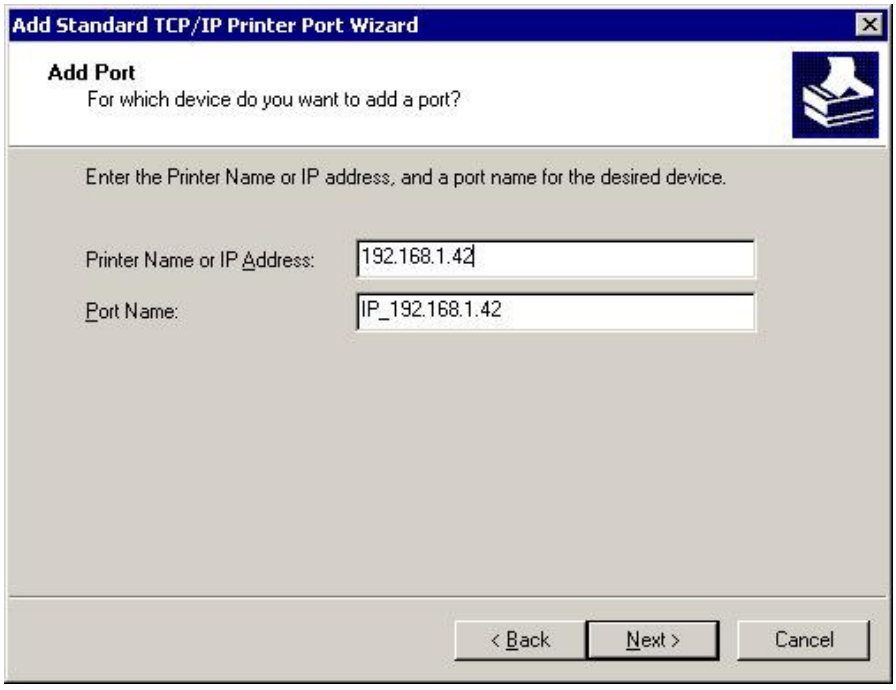
The printer has to be installed as local printer:


Add Printer Wizard
Local or Network Printer
Is the printer attached to your computer?
If the printer is directly attached to your computer, click Local printer. If it is attached to another computer, or directly to the network, click Network printer.
Local printer
Automatically detect and install my Plug and Play printer
Network printer
< Back
Next >
Cancel

„Create new port…“ to print over the TCP/IP Port



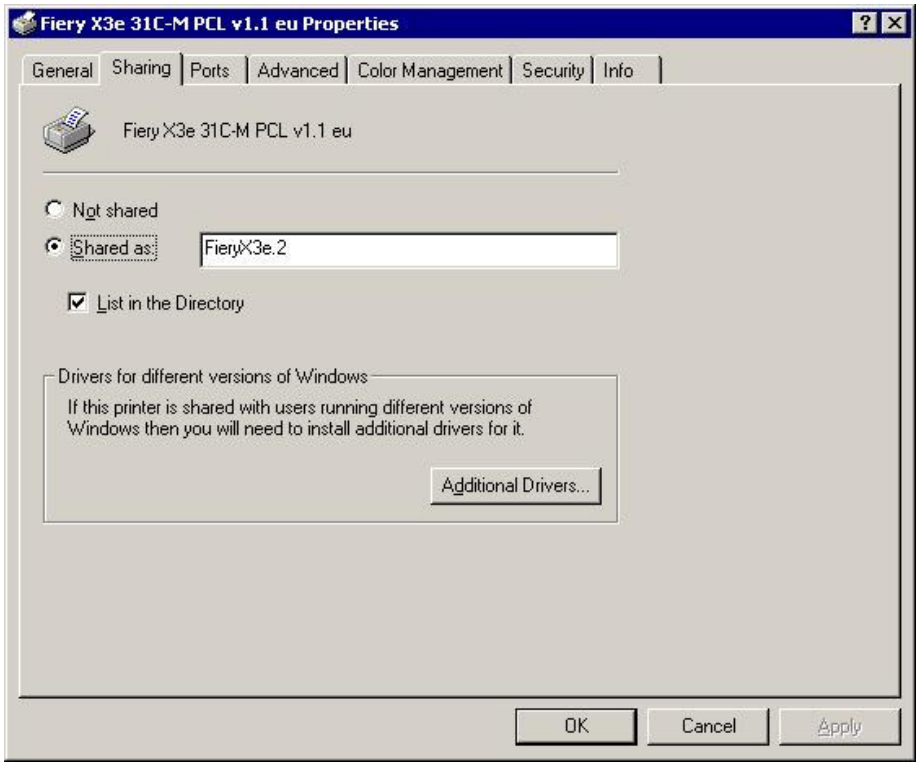
and configure the TCP/IP port:


Add Standard TCP/IP Printer Port Wizard
Add Port
For which device do you want to add a port?
Enter the Printer Name or IP address, and a port name for the desired device.
Printer Name or IP Address:
192.168.1.42
Port Name:
IP_192.168.1.42
< Back
Next >
Cancel

with the IP address as configured on the printer:

192.168.1.41 was used.

To use the printer as a network printer you have to share it:



The following information was printed from the Printer Test Page:

Machine name: wts-ps

Printer name: Fiery X3e 31C-M PS v1.1 eu

Printer model: Fiery X3e 31C-M PS v1.1 eu

Color support: yes

Port name(s): IP_192.168.1.41

Data format: RAW

Share name: FieryX3e

Driver name: PSCRIPT5.DLL

Data file: EF3M2A24.PPD

Config file: PS5UI.DLL

Help file: PSCRIPT.HLP

Driver version: 5.17

Environment: Windows NT x86

Files used by this driver:

C:\WINNT\System32\spool\DRIVERS\W32X86\3\PSCRIPT.NTF
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.BXE
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.CHM
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.DLL
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.EXT
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.FIN
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.INI
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.LAN
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.OEM
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.PGE
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.PSR
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.UIM
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EHM10.DLL
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EHMBRG.DLL
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EHMCORE.DLL
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EHMCOL.DLL
C:\WINNT\System32\spool\DRIVERS\W32X86\3\EHMEFI.DLL

4.2 Installation of printers on a Windows 2000 Terminal Server

If a normal user on the Terminal Server would like to connect the network printer as installed above, it would not be successful, because there is no driver available on the Terminal Server. For this, the operating system would ask if he wants to install the driver.

Installing drivers is only possible with administrator rights on the Server.

If the administrator installs the driver all users can connect to the network printer.

The installation accords to the installation on the print server with using any port, e.g. the LPT1. After the installation the printer object will be deleted.

The following information was printed from the Printer Test Page:

Machine name: WTS01E

Printer name: \\WTS-PS\Fiery X3e 31C-M PS v1.1 eu

Printer model: Fiery X3e 31C-M PS v1.1 eu

Color support: Yes

Port name(s): IP_192.168.1.41

Data format: RAW

Share name: Fiery X3e

Driver name: PSCRIPT5.DLL

Data file: EF3M2A24.PPD

Config file: PS5UI.DLL

Help file: PSCRIPT.HLP

Driver version: 5.17

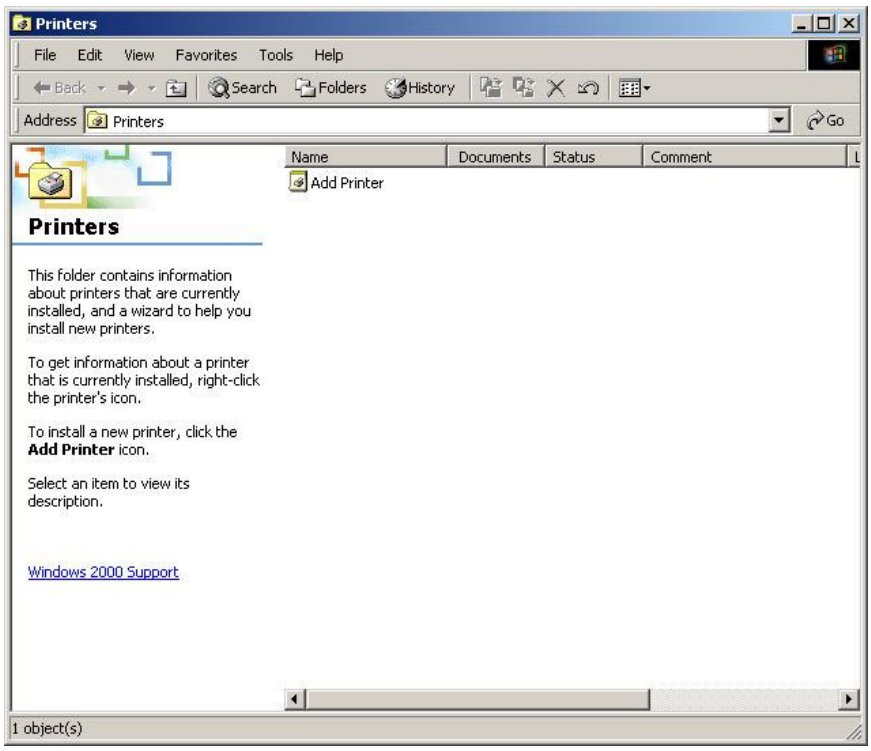
Environment: Windows NT x86

Files used by this driver:

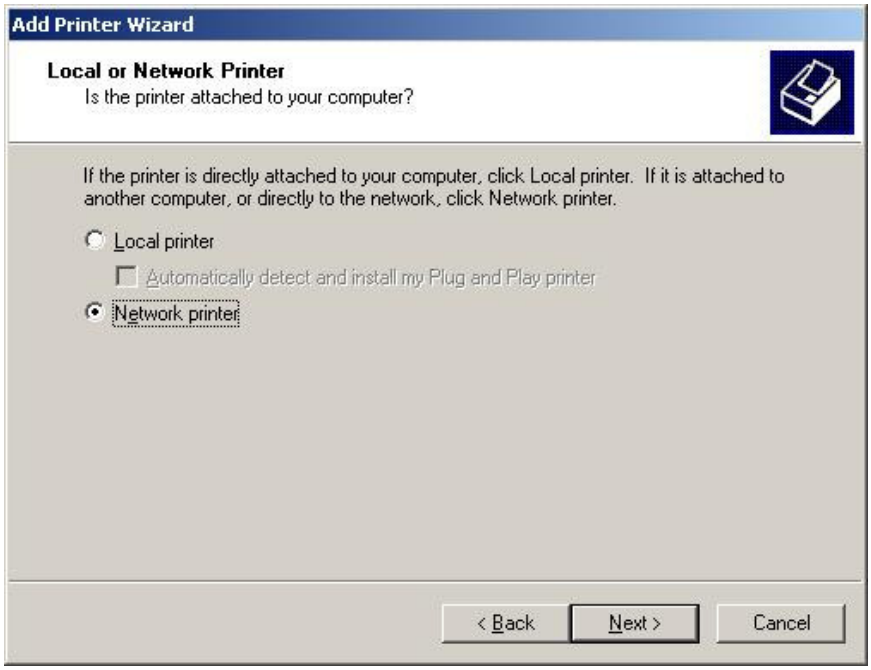
M:\WINNT\System32\spool\DRIVERS\W32X86\3\PSCRIPT.NTF
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.BXE
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.CHM
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.DLL
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.EXT
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.FIN
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.INI
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.LAN
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.OEM
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.PGE
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.PSR
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EF3M2A24.UIM
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EHM10.DLL
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EHMBRG.DLL
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EHMCORE.DLL
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EHMCOL.DLL
M:\WINNT\System32\spool\DRIVERS\W32X86\3\EHMEFI.DLL

4.3 Connection printers in a Windows 2000 Terminal Server session

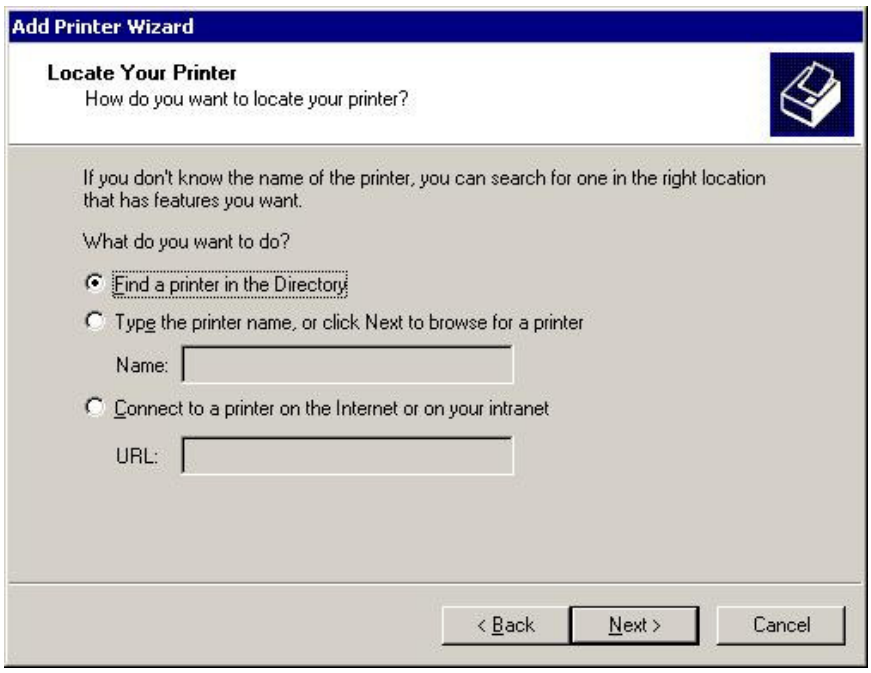
As explained all users can connect to the network printer if it was installed by the administrator first. They had to add the printer: Start – settings – printers:

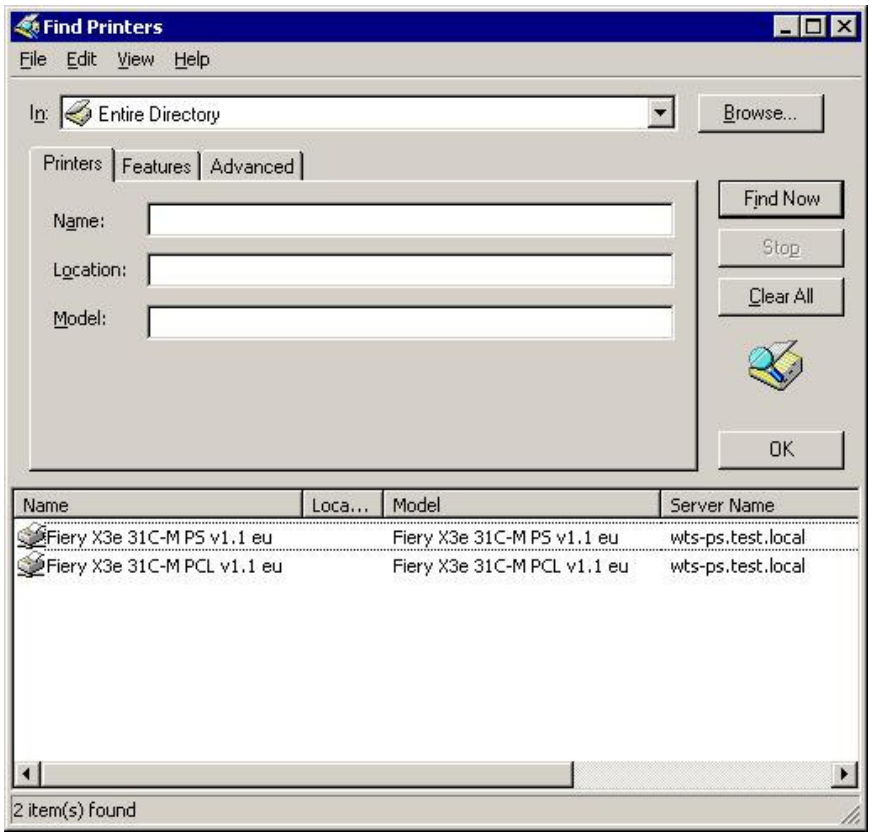

Printers
File Edit View Favorites Tools Help
Back Search Folders History
Address Printers
Go
Name Documents Status Comment
Add Printer
Printers
This folder contains information about printers that are currently installed, and a wizard to help you install new printers.
To get information about a printer that is currently installed, right-click the printer's icon.
To install a new printer, click the Add Printer icon.
Select an item to view its description.
Windows 2000 Support
1 object(s)

Choose the „Network printer server“


Add Printer Wizard
Local or Network Printer
Is the printer attached to your computer?
If the printer is directly attached to your computer, click Local printer. If it is attached to another computer, or directly to the network, click Network printer.
Local printer
Automatically detect and install my Plug and Play printer
Network printer
< Back
Next >
Cancel

and the printer to connect.


Add Printer Wizard
Locate Your Printer
How do you want to locate your printer?
If you don't know the name of the printer, you can search for one in the right location that has features you want.
What do you want to do?
Find a printer in the Directory
Type the printer name, or click Next to browse for a printer
Name:
Connect to a printer on the Internet or on your intranet
URL:
< Back
Next >
Cancel



If the driver was already installed by the administrator, the client can use the printer.

4.4 Connecting printers as “Auto created client printer”

As local installed printers also network printers connected to the client can be connected to a terminal session as so called “Auto created client printer”. If this feature is enabled through the ICA client settings, the connected network printer will be automatically connected as a network printer in the clients terminal session.

As explained all users can connect to the network printer if it was installed by the administrator first.

The installation accords to the installation on a Print Server or as the connection on the Terminal Server. Both variants are possible.

5 Funktionality Tests

5.1 Introduction

The printer was tested under different circumstances in the Windows Terminal Server environment. The most important point is the functionality in a Terminal Server session and the multi-user capability of the printer driver through the Terminal Server.

5.2 Test the printer from the Print Server

To check the functionality in principal, the printer has to be used from the Print Server direct.

Check the configuration of the printer, if necessary configure it. To test only the Printer Test Page was printed. Test passed successfully.

5.3 Test the printer from Terminal Server

To test the printer driver on the Terminal Server the following test scenarios have to be passed.

5.3.1 Test Printer from Terminal Server Console

With a logged on administrator the first tests are to configure the printer:

All necessary configurations could be done. The configuration was saved and available for all users. Test passed.

Printing with all applications: Test passed.

5.3.2 Individual Session on Terminal Server

Logged on administrator:

Configuring printer: Test passed.

Printing with the complete list of application: Test passed.

Logged on user:

Printing with the complete list of application: Test passed.

Configuring printer for this session: Test passed.

5.3.3 Several Sessions connecting to the printer

This test was done with 5 client machines and up to 10 sessions.

The printer was connected to all client machines successfully.

5.3.4 Several Sessions with concurrent use of the Printer

This test was done with 5 client machines and up to 10 sessions.

The printer was used concurrently by all 10 users. The users choose different configurations of the printer.

All tests passed successfully.

5.3.5 Individual Session on Terminal Server with “Auto created client printer

Logged on administrator:

Configuring the printer: Test passed,

Printing with the complete list of application: Test passed.

Logged on user:

Printing with the complete list of application: Test passed.

Configuring printer for this session: Test passed.

Several users with concurrent use of “auto created client printers”: Test passed.

5.4 Test of Features and Settings under Multi-User Conditions

5.4.1 Features and Settings

The following settings / features had been tested:

Paper source: different paper sources
Copy count: multi pages printing
Orientation: Portrait/Landscape
Duplex Printings
Hole punching
Stapling mode

All tests passed successfully.

6 Summary

The tested printer driver worked correct in all different situations. No unexpected program or session end occurred. No unexpected shutdown like a blue screen of death occurred.

The printer was running stable also in load tests, when 10 users printed concurrently.